

# Robotics and Automation & Biomaterials and Nanomaterials

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## *Baolin Huang*

*Guangzhou University, China*

### **Biomimetic localization of bone morphogenetic protein-2 bioactivity by chondroitin sulfate**

Localization of bone morphogenetic protein-2 (BMP-2) with continuous and effective osteogenic stimulation is still a great challenge in bone regeneration. In our study, BMP-2 was tethered upon chondroitin sulfate (CS)-functionalized calcium phosphate cement (CPC) scaffolds via specific noncovalent interactions (in a biomimetic form). The fabricated scaffolds not only controlled the release kinetics and presentation state of rhBMP-2, but also effectively increased the expressions of bone morphogenetic protein receptors (BMPRs) and enhanced the recognitions of remained BMP-2 to BMPRs. In vivo studies demonstrated that BMP-2-loaded CS-functionalized CPC exhibited sustained release of the protein and induced high quality ectopic bone

formation. Thus, this work could provide new avenues in mimicking bone extracellular matrix microenvironment and localizing growth factor activity for enhanced bone regeneration.

#### **Speaker Biography**

Baolin Huang is a young principal investigator of School of Life Science, Guangzhou University, China. In June 2011, he graduated from Donghua University, China as a Bachelor of Engineering. In June 2017, he completed his PhD under the supervisor of Prof. Changsheng Liu from East China University of Science and Technology, China. During October 2014 to October 2015, he studied at Queensland University of Technology, Australia as a Joint-Training PhD student. Since July 2017, he is a lecturer of Guangzhou University, China. He published 8 papers in Q1 Journals (mostly Materials Science, Biomaterials). He is the members of Chinese Society for Biomaterials, Queensland Chinese Association of Scientists and Engineers, and Australian Nanotechnology Network.

e: [hblin@gzhu.edu.cn](mailto:hblin@gzhu.edu.cn)*Notes:*